AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

1. (Currently Amended) A method ~~to reduce~~ of reducing noise in a ~~noisy~~ speech signal, comprising:

applying at least two versions of said ~~noisy~~ speech signal to a first filter, said first filter outputting a speech reference signal~~, said speech reference signal~~ comprising a desired signal and a noise contribution, and at least one noise reference signal~~, each of said at least one noise reference signals~~ comprising a speech leakage contribution and a noise ~~contribution,~~ contribution;

applying a filtering operation to ~~each of~~ said at least one noise reference signal; ~~signals,~~ and

subtracting from said speech reference signal ~~each of~~ said filtered at least one noise reference ~~signals, yielding~~ signal to provide an ~~enhanced~~ output version of said speech signal having reduced noise therein,

whereby said filtering operation of said at least one noise reference signal is performed with ~~filters~~ one or more filters having filter coefficients ~~determined by minimizing~~ configured to minimize a weighted sum of the speech distortion energy and the residual noise energy in said output version of said speech signal, said speech distortion energy being the energy of said speech leakage contributions ~~in said enhanced speech signal~~ and said residual noise energy being the energy ~~in the~~ of said noise contributions ~~of said~~ in said speech reference signal ~~in said enhanced speech signal~~ and ~~of said~~ in said at least one noise reference signal ~~in said enhanced speech signal.~~

2. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 1, wherein at least two microphones are provided, each said microphone configured to provide a version ~~said at least two versions~~ of said ~~noisy~~ speech signal to said first filter. ~~are signals from at east two microphones picking up said noisy speech signal.~~

3. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 1, wherein said first filter is a spatial pre-processor ~~filter, comprising~~ filter comprising:

       a beamformer ~~filter~~ filter; and

       a blocking matrix filter.

4. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 3, wherein said speech reference signal is output by said beamformer filter, and wherein said ~~and said~~ at least one noise reference signal is output by said blocking matrix filter.

5. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 1, further comprising:

       delaying ~~wherein~~ said speech reference signal ~~is delayed~~ before performing ~~the subtraction~~ said subtraction of said filtered at least one noise reference signal from said speech reference signal ~~step~~.

6. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 1, further comprising:

       applying a ~~wherein additionally a~~ filtering operation ~~is applied~~ to said speech reference ~~signal~~ signal; and ~~wherein said~~

       subtracting said filtered speech reference signal ~~is also subtracted~~ and said at least one noise reference signal from said speech reference ~~signal.~~ signal to provide said output version of said speech signal.

7. (Currently Amended) The method ~~to reduce noise according to claim~~ of claim 1, further comprising: ~~comprising the step of~~

~~regularly~~ adapting said filter ~~coefficients, thereby taking into~~ coefficients so as to take in to account one or more of said speech leakage ~~contributions in each of~~ contribution ~~said at least one noise reference signals~~ signal ~~or taking into account said speech leakage contributions~~ in ~~each of said at least one noise reference~~ signals and said desired signal ~~in said speech reference signal~~.

8.   (Cancelled)

9. (Currently Amended) A ~~signal processing circuit for~~ signal processor for reducing noise in a ~~noisy~~ speech signal, ~~comprising~~ comprising:

a first filter~~, said first filter having at least two inputs and being arranged for outputting~~ configured to receive two versions of said speech signal, and to output a speech reference signal and at least one noise reference signal, wherein said speech reference signal comprises a desired signal and a noise contribution, and wherein said at least one noise reference signal comprises a speech leakage contribution and a noise contribution;

a second filter configured to filter ~~to apply said speech reference signal to and filters to apply each of~~ said at least one noise reference ~~signals to, and~~ signal; and

~~summation means for substracting~~ a summer configured to subtract ~~from said speech reference signal said filtered speech reference signal and each of~~ said at least one filtered noise reference ~~signals.~~ signal from said speech reference signal to provide an output version of said speech signal having reduced noise therein,

wherein said second filter has filter coefficients configured to minimize a weighted sum of the energy of said speech leakage contribution and the energy of said noise contributions in said output version of said speech signal.

10. (Currently Amended) The signal ~~processing circuit according to~~ processor of claim 9, wherein said first filter is a spatial pre-processor ~~filter, comprising~~ filter comprising:

        a beamformer ~~filter~~ filter; and

        a blocking matrix filter.

11. (Currently Amended) The signal ~~processing circuit according to claim 9~~ processor of claim 10, wherein said beamformer filter is a delay-and-sum beamformer.

12.   (Cancelled)

13. (Currently Amended) The signal ~~processing circuit according to~~ processor of claim 9, wherein said signal ~~processing circuit~~ processor is ~~implanted~~ implemented in a prosthetic hearing device.

14. (New) The signal processor of claim 9, wherein said second filter is further configured to filter said speech reference signal, and wherein said summer is configured to subtract said filtered speech reference signal and said at least one filtered noise reference signal from said speech reference signal to provide said output version of said speech signal.

15. (New) The signal processor of claim 9, wherein said filter coefficients are adaptive so as to take in to account one or more of said speech leakage contribution and said desired signal.

16. (New) A signal processor configured to reduce noise in a speech signal, comprising:

a means for filtering at least two versions of said speech signal, said filtering means configured to output a speech reference signal comprising a desired signal and a noise contribution, and at least one noise reference signal comprising a speech leakage contribution and a noise contribution;

a means for filtering said at least one noise reference signal; and

a means for subtracting said at least one filtered noise reference signal from said speech reference signal so as to output a version of said speech signal having reduced noise therein,

wherein said means for filtering said at least one noise reference signal is configured to minimize a weighted sum of the energy of said speech leakage contribution and the energy of said noise contributions in said output version of said speech signal.

17. (New) The signal processor of claim 16, wherein said means for filtering said at least two versions of said speech signal is a spatial pre-processor filter comprising:

a beamformer filter; and

a blocking matrix filter.

18. (New) The signal processor of claim 17, wherein said speech reference signal is output by said beamformer filter, and wherein said at least one noise reference signal is output by said blocking matrix filter.

19. (New) The signal processor of claim 16, further comprising:

means for delaying said speech reference signal before performing said subtraction of said at least one filtered noise reference signal from said speech reference signal.

20. (New) The signal processor of claim 16, further comprising:

means for filtering said speech reference signal; and

means for subtracting said filtered speech reference signal and said at least one noise reference signal from said speech reference signal to provide said output version of said speech signal.

21. (New) The signal processor of claim 16, further comprising:

     means for adapting said filtering of said noise reference signal so as to take in to account one or more of said speech leakage contribution and said desired signal.